Efficasey Environmental, LLC

Efficacy, *n., "Power to produce the intended effect."*

14015 Park Drive
Suite 109
Tomball, Texas 77375
Phone: 281-351-9441
Facsimile: 281-351-9447

To: Gwen Massenburg	Fax Number: 312-886-4071
Company: USEPA	Date: October 2, 2002

From: Terry Casey	Fax Number: 281-351-9447
Company: Efficasey Environmental, LLC	Pages (including cover): 24

Subject:

COMMENTS:

Original sent via federal express.

cc: Shelia Abraham, OEPA
Marcus Martin, Esq.
Susan Prout, Esq., USEPA
Dennis Reis, Esq.
Patricia Vojak, Entact

Efficasey Environmental, LLC

Efficacy, *n.*, *"Power to produce the intended effect."*

Terry S. Casey
14015 Park Drive, Suite 109
Tomball, TX 77377-6291
Phone: (281) 351-9441
Fax: (281) 351-9447

October 2, 2002

Via Facsimile and Express Mail

Ms. Gwen Massenburg
Remedial Project Manager
U.S. Environmental Protection Agency, Region V
77 West Jackson Blvd., SR-6J
Chicago, Illinois 60604-3590

Re: Designation of Contractor – Administrative
Order by Consent ("AOC"),
Docket No. V-W-'02-C-711

Dear Ms. Massenburg:

Pursuant to Section V.1. of the above-referenced AOC, the Respondents are designating ENTACT, Inc. as the primary contractor for work to be performed by the Respondents under the AOC. Mr. Mike Stoub will act as ENTACT's Project Manager.

ENTACT is the only contractor currently under contract for the project. Consistent with the requirements of the AOC, the Respondents will notify EPA of additional contractors/subcontractors at least five business days prior to commencement of work.

Attached, please find a copy of ENTACT's Statement of Qualifications ("SOQ"). An original copy of the SOQ is being sent to you under separate cover by ENTACT.

Respectfully,

Terry S. Casey, CEP

cc: Facsimile and U.S. Postal Service
Sheila Abraham, OEPA
Marcus Martin, Esq.
Susan Prout, Esq., USEPA
Dennis Reis, Esq.
Patricia Vojack, Entact

ENTACT's STABILIZATION & CAP and CONTAINMENT PROJECT EXPERIENCE

Prepared for:
Gwenn Massenburg
USEPA Region 5

Prepared by:
ENTACT

OCTOBER 2, 2002

INTRODUCTION

ENTACT designs and implements environmental remediation solutions. Our organization was founded on the notion that business, technical, regulatory, and field expertise are needed to deliver environmental solutions. Using a multi-disciplined Total Performance Approach, ENTACT aligns its agenda with the customer, only receiving reward for results and producing the lowest total cost every time. In this way, ENTACT achieves its Vision Statement: ***"Leading the Nation in Customer Care"***.

HIGHLIGHTED ACHIEVEMENT AND INNOVATION

TECHNICAL DESIGN

• Schuylkill Metals NPL Site	ENTACT created a new-patented treatment system and additive that delivered previously unachieved stabilization/solidification requirements at a substantial cost savings.

REGULATORY NEGOTIATION

• Unimod Scrap NPL Site	By modifying the Amended Proposed Plan and Negotiating a streamlined Scope of Work, ENTACT created a significant cost savings opportunity that we subsequently delivered in the field.

FIELD IMPLEMENTATION

• Asarco Refinery	ENTACT decontaminated and demolished 26 acres of refinery buildings, chemically stabilized 5,000 cubic yards of metal impacted refractory brick, and constructed an on site material consolidation area - performing all project activities on schedule and within budget.

CUSTOMER CARE

• Jefferson at the North End	ENTACT partnered with Brownfield real estate developers by providing and delivering a lump sum (regardless of scope changes) price for all environmental remediation at this property.

In addition to outstanding performance, it is ENTACT's culture that distinguishes this organization from any other. We have created a culture that thrives on innovation, rewards risk taking, emphasizes teamwork, creates owners, and most importantly, holds the individual as the most important asset. ENTACT flourishes because of its remarkable people.

ENTACT MISSION STATEMENT

> ***"Our mission is to provide innovative and low cost environmental solutions through building a principle-centered organization dedicated to positive development of individuals, values, and teamwork, resulting in our ultimate goal of customer satisfaction."***

ENTACT's capabilities are expressed best through project descriptions. This document contains representative project descriptions sorted by performance capability.

STATS & FACTS

Founded	1991
Associates	150
Office Locations	Chicago, Dallas
Annual Revenue	$50M
Company Awards	1997 Inc. Magazine "500 Fastest Growing Companies", 2000 Zweig White "Fastest Growing Environmental Companies"
Completed Projects	1100+
Representative Customer List	Allied Signal, Arrow Electronics, ASARCO, Beazer, Berhlehem Steel, Commonwealth Edison, Conoco, DuPont, Exide, Ford Motor Company, General Motors, Halliburton, Johnson Controls, Lucent, Nicor, Phillips Petroleum, Texaco, Union Pacific Railroad
Project Size	$5,000 - $50,000,000
Project Locations	42 States, Puerto Rico, Canada, Mexico, Select Worldwide Locations
Material Handled	5 Million Cubic Yards
Hazardous Treatment	2 Million Cubic Yards
Building Decontamination	5 Million Square Feet
Building Demolition	4 Million Square Feet
Residential Lot Remediation	2000 + Lots
Cap and Containment Systems	200 + Acres
Contaminants Addressed	Metals, Organics, Asbestos, PCB's
Media	Soil, Groundwater, Surface Water
Cleanup Program Experience	CERCLA - NPL CERCLA - Emergency Removal Actions RCRA State Superfund Voluntary Cleanup Programs Brownfield Program TSCA
US EPA Region Experience	Regions 1-10
Patents	#5,588,947 - Hazardous Waste Treatment Apparatus #5,591,116 - Hazardous Waste Treatment Additive #5,667,696 - Treatment of Lead Based Paint Mixtures

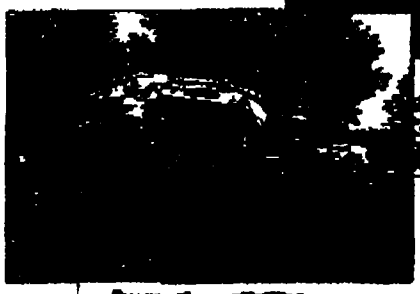
MEDIUM
- ☑ SOILS
- ☐ GROUNDWATER
- ☐ SURFACE WATER

CONTAMINANT
- ☑ METALS
- ☐ ORGANICS
- ☐ ASBESTOS

ACTIVITY
- ☐ RECON / REMO
- ☐ CAP CONSTRUCTION
- ☐ RESIDENTIAL CLEANUP
- ☑ TREATMENT

UNITED SCRAP LEAD

TROY, OHIO REGION 5



Excavation activities

Dumping activities

Awaiting for offsite disposal

REGULATORY ACHIEVEMENTS

- Modified the Amended Proposed Plan which resulted in substantial cost savings and an equally protective remedy
- Convinced the US EPA and the Ohio EPA that Applicable Relevant Appropriate Regulations (ARARs) would allow the on-site treatment and on-site, or off-site, disposal of 56,000 cubic yards of lead-contaminated wastes
- Negotiated a site specific Scope of Work that streamlined the Remedial Design/ Remedial Action (RD/RA) review process 50% by eliminating the 30% and 60% design completeness documents
- Negotiated a Scope of Work that limited the treatment and disposal volumes to 60,000 cubic yards of lead contaminated wastes
- Limited the excavation of contaminated soils to 1 foot below grade
- Negotiated a remedy that involves only groundwater monitoring and does not include groundwater remediation, although lead contamination occurs within the water table aquifer and in a potable aquifer
- Successfully negotiated out the need to characterize and remediate the stream sediments bordering the site
- Negotiated a flexible RA that will allow for the implementation of different options depending actual site conditions while implementing the RA - allowed the PRP group to choose between a consolidation and cap scenario or additional excavation to the top of the water table, (i.e., approximately a depth of 3 feet)
- Conducted and prepared a Human Health Risk Assessment for US EPA to establish cleanup levels at the site.
- Acquired a cleanup level of 1,550 mg/kg total lead for the site

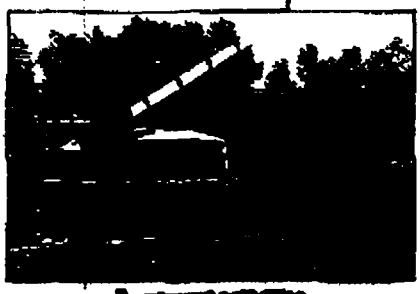
MEDIUM
- ☑ SOILS
- ☐ GROUNDWATER
- ☐ SURFACE WATER

CONTAMINANT
- ☑ METALS
- ☐ ORGANICS
- ☐ ASBESTOS

ACTIVITY
- ☐ REMOVAL / DEMO
- ☐ CAP CONSTRUCTION
- ☐ INCREMENTAL CLEANUP
- ☑ TREATMENT

TROY, OHIO REGION 5

Loading material for treatment



Treatment activities

Preparation for sampling activities

ENGINEERING/TECHNICAL ACHIEVEMENTS

- Designed the Remedial Design/Remedial Action Workplans required in the Scope of Work, including Field Sampling and Analysis Plan, Health and Safety Plan, Performance Standard Verification Plan, Contingency Plan, Material Management Plan, Groundwater Monitoring Plan, Operation and Maintenance Plan, Construction Quality Assurance Plan, Quality Assurance Project Plan, Stormwater Control Plan, Material Management Plan, and Transportation and Disposal Plan
- Designed a 2-3 acre multilayer cap
- Designed treatability study using ENTACT's patented treatment additives and equipment
- Groundwater monitoring program
- Verified sampling program
- Monitored air and surface water during the Remedial Action (RA) activities

REMEDY INCLUDED THE FOLLOWING FIELD ACTIVITIES

- Excavated and treatment of approximately 60,000 cubic yards of lead-impacted material which meet performance criteria for stabilization of lead-impacted material for TCLP lead
- Consolidated activities, cap constructed, and backfilled

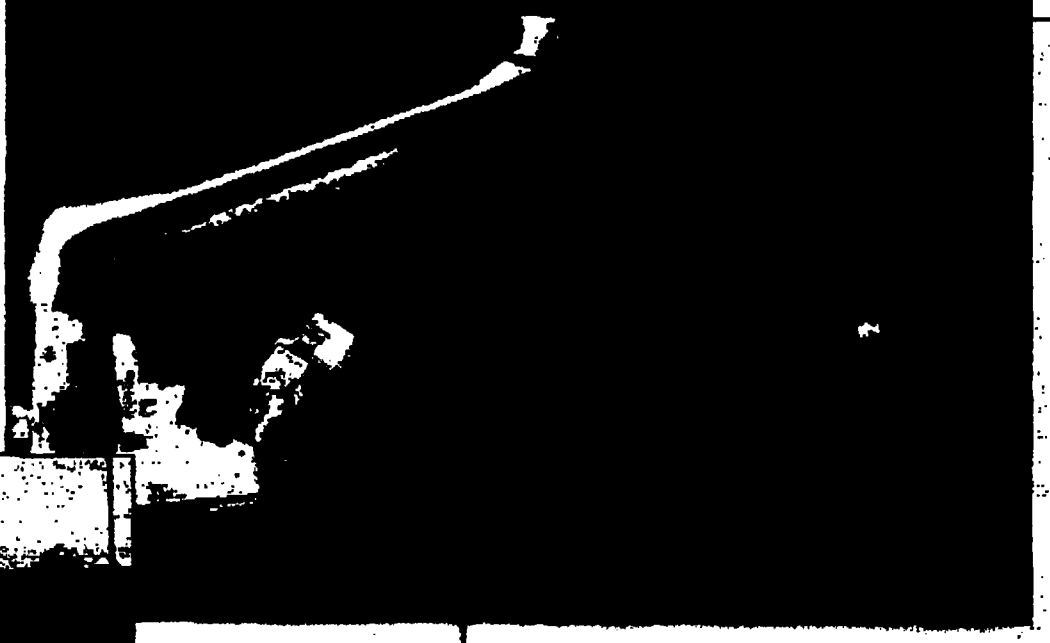
MEDIUM
- ☑ SOILS
- ☑ GROUNDWATER
- ☐ SURFACE WATER

CONTAMINANT
- ☐ METALS
- ☐ ORGANICS
- ☐ ASBESTOS

ACTIVITY
- ☑ RECON / REMR
- ☐ CAP CONSTRUCTION
- ☐ RESIDENTIAL CLEANUP
- ☑ TREATMENT

ARCANUM IRON & METAL SITE

ARCANUM, OHIO | REGION 5



On-site air monitoring station

Soil sampling activities

Demolition of on-site office building

REGULATORY ACHIEVEMENTS

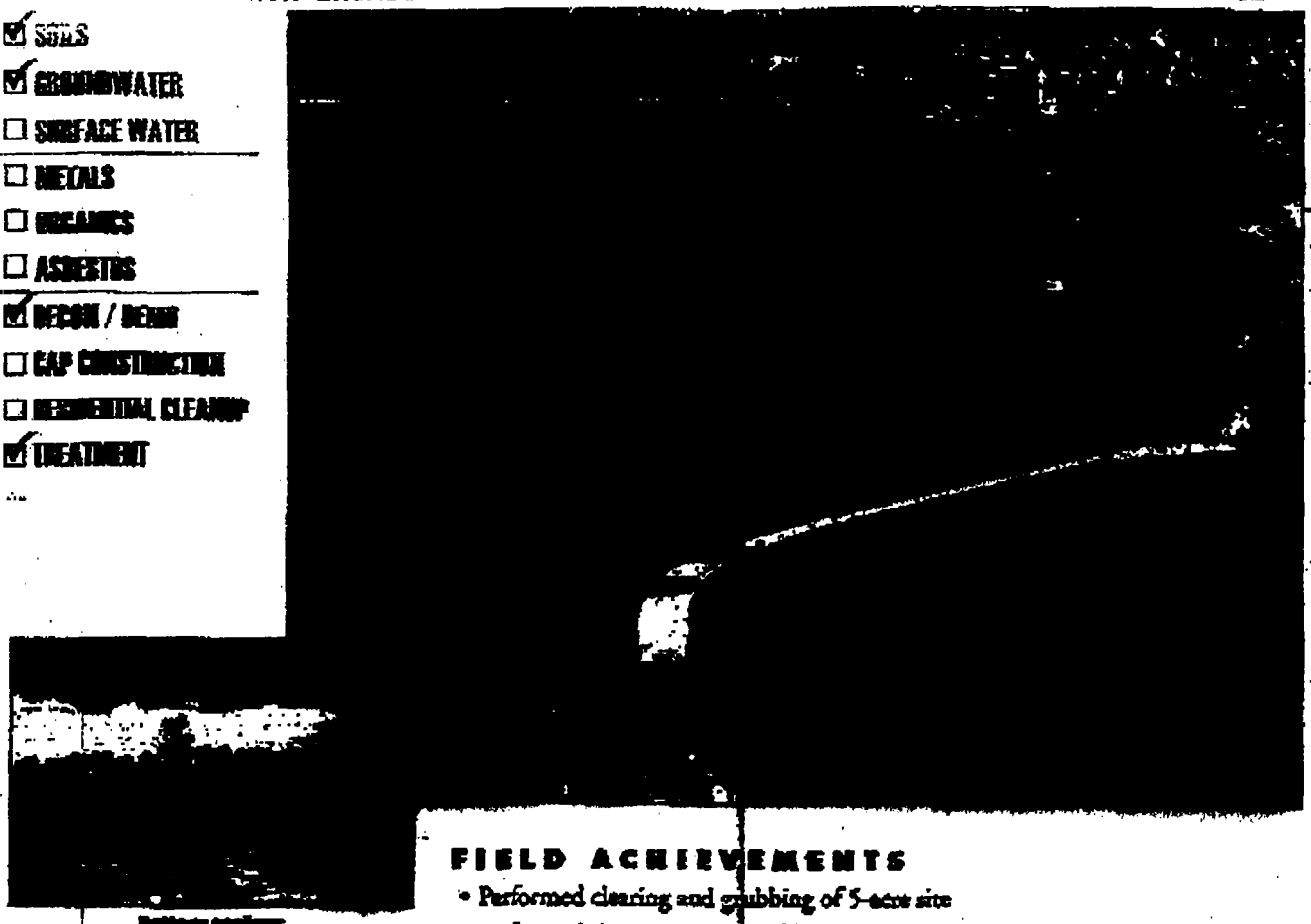
- Modified the Amended Proposed Plan which resulted in substantial cost savings and an equally protective remedy
- Convinced the USEPA and Ohio EPA that Applicable Relevant Appropriate Regulations (ARARs) would allow the on-site treatment and off-site disposal of approximately 30,000 cubic yards of lead-contaminated soil
- Negotiated a site-specific Scope of Work that streamlined the Remedial Design/ Remedial Action
- Negotiated a Scope of Work that limited the treatment and disposal volumes to 30,000 cubic yards from an estimated 50,000 cubic yards
- Successfully negotiated reducing the stretch of ditch requiring remediation to only 200 feet from the former site outfall
- Successfully negotiated allowing treatment to be conducted on the ground in a bermed treatment containment area rather in a smaller constructed area to expedite removal activities
- Conducted and prepared a Human Health Risk Assessment for USEPA to establish cleanup levels at the site of 1,550 mg/Kg total lead
- Conducted several rounds of groundwater sampling to convince USEPA that initial groundwater detections of lead collected by previous contractors were the result of suspended particulate matter rather than dissolved lead in groundwater
- Used low-flow sampling technology with variable flow submersible pump and in-line flow through cell to record water quality data to make case for eliminating need to remediate groundwater

MEDIUM
- ☑ SOILS
- ☑ GROUNDWATER
- ☐ SURFACE WATER

CONTAMINANT
- ☐ METALS
- ☐ ORGANICS
- ☐ ASBESTOS

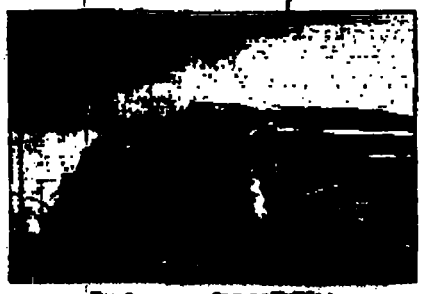
ACTIVITY
- ☑ RECON / REMR
- ☐ CAP CONSTRUCTION
- ☐ RESIDENTIAL CLEANUP
- ☑ TREATMENT

ARCANUM, OHIO REGION 5



Battery Crushing

Soil Mixing with Stabilizer



Dust Suppression Activities During Demolition

FIELD ACHIEVEMENTS

- Performed clearing and grubbing of 5-acre site
- Performed site survey, site gridding, and pre-excavation sampling to delineate extent of contamination using X-Ray Flourescence (XRF) instrument and fixed laboratory analysis
- Deconned and demolished existing on-site buildings including sawmill, office building and deteriorating smelter
- Used XRF instrument during excavation to guide depths of excavation and prevent excavation of clean material
- Excavated soils and stabilized 30,000 tons of lead-impacted soils and battery debris to meet 5.0 mg/L criterion for off-site disposal as non-hazardous waste
- Removed and stabilized ~4,000 cubic yards of ground battery chips to meet 0.75 mg/l criterion for disposal as non-hazardous waste
- Transported and disposed of all treated material at an approved Subtitle D landfill
- Completed project within timeframe and lump sum price

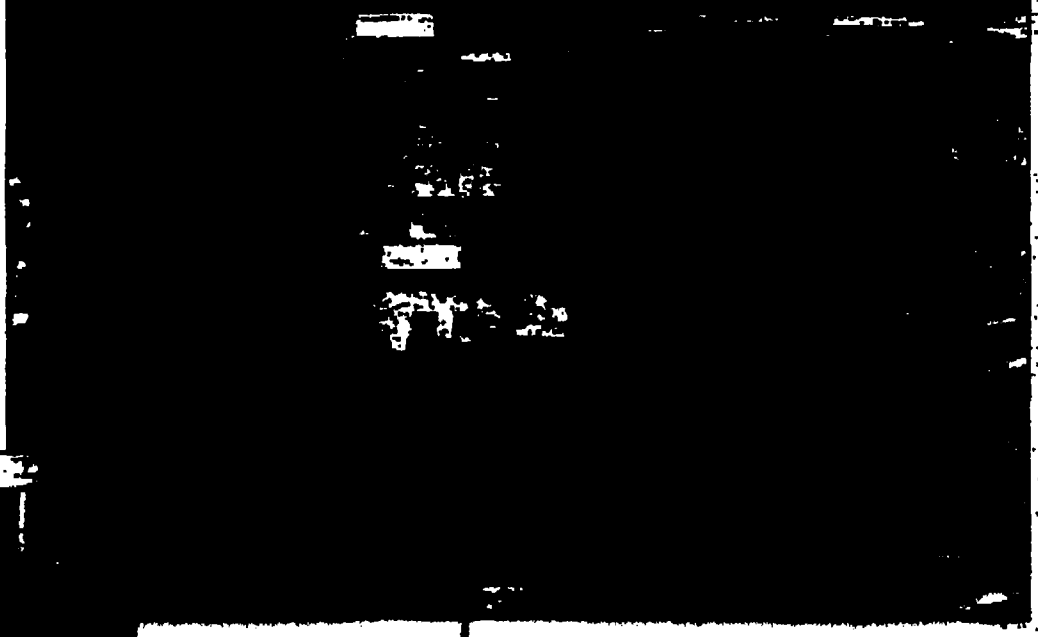
LEAD BATTERY RECYCLER SITE

TOLEDO, OHIO | REGION 5

MEDIUM
- ☑ SOILS
- ☐ GROUNDWATER
- ☑ SURFACE WATER

CONTAMINANT
- ☑ METALS
- ☐ ORGANICS
- ☐ ASBESTOS

ACTIVITY
- ☐ RECON / REMOVAL
- ☐ CAP CONSTRUCTION
- ☐ RESIDENTIAL CLEANUP
- ☑ TREATMENT



In-situ backfill activities

Treatment of contaminated soils

Treatment chamber

REGULATORY ACHIEVEMENTS

- Operated under USEPA Administrative Order of Consent
- Developed Health and Safety Plan, Work Plan and Quality Assurance Plan
- Obtained approval for on-site stabilization of lead impacted soil

ENGINEERING/TECHNICAL ACHIEVEMENTS

- Performed Extent of Contamination (EOC) survey using X-Ray Flourescence (XRF) technology treatability study for stabilization of lead impacted soils

FIELD ACHIEVEMENTS

- Performed excavation and on site stabilization of 13,000 tons of lead impacted soils to non hazardous levels for off-site disposal at a Subtitle D Landfill (Work included 1000 linear feet of remediation along an active railroad)
- Completed site restoration including railroad easement
- Managed 140,000 gallons of surface water
- Decontaminated 17,000 square feet of concrete slab eliminating the need for removal and resulting in significant cost savings

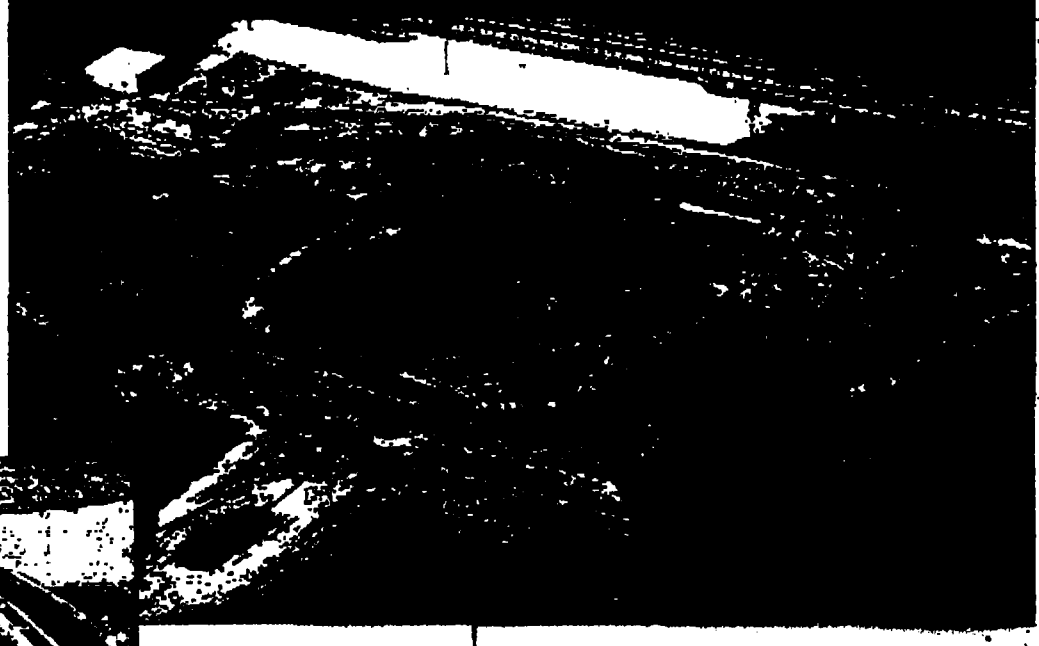
MEDIUM
- [x] SOILS
- [ ] GROUNDWATER
- [x] SURFACE WATER

CONTAMINANT
- [x] METALS
- [ ] ORGANICS
- [ ] ASBESTOS

ACTIVITY
- [ ] RECON / DEMO
- [ ] CAP CONSTRUCTION
- [ ] RESIDENTIAL CLEANUP
- [x] TREATMENT

SCHUYLKILL METALS

PLANT CITY, FLORIDA | REGION 4



Pictured treatment unit

Pictured material treatment in treatment unit

Pictured management activities

REGULATORY ACHIEVEMENTS

- Designed, obtained approval, and implemented an optimized treatability study workplan in less than 45 days that provided a more cost effective solution and achieved the stringent performance criteria established by the Record of Decision (ROD) while significantly reducing the additive to material ratio
- New treatability workplan took into account adjacent neighborhoods, surrounding wetlands, shallow groundwater, nature and Extent of the Contamination, and stringent performance criteria
- Negotiated with the US EPA Region 4, Florida Department of Environmental Regulation, and the EPA Cincinnati Research Division, performing as a liaison on behalf of the customer
- Prepared and/or revised Construction Management Plan, Sampling and Analysis Plan, Treatability Study, and Site Safety and Health Plan
- Negotiated the removal of third party oversight consultant and EPA Technical Assistance Team

ENGINEERING/TECHNICAL ACHIEVEMENTS

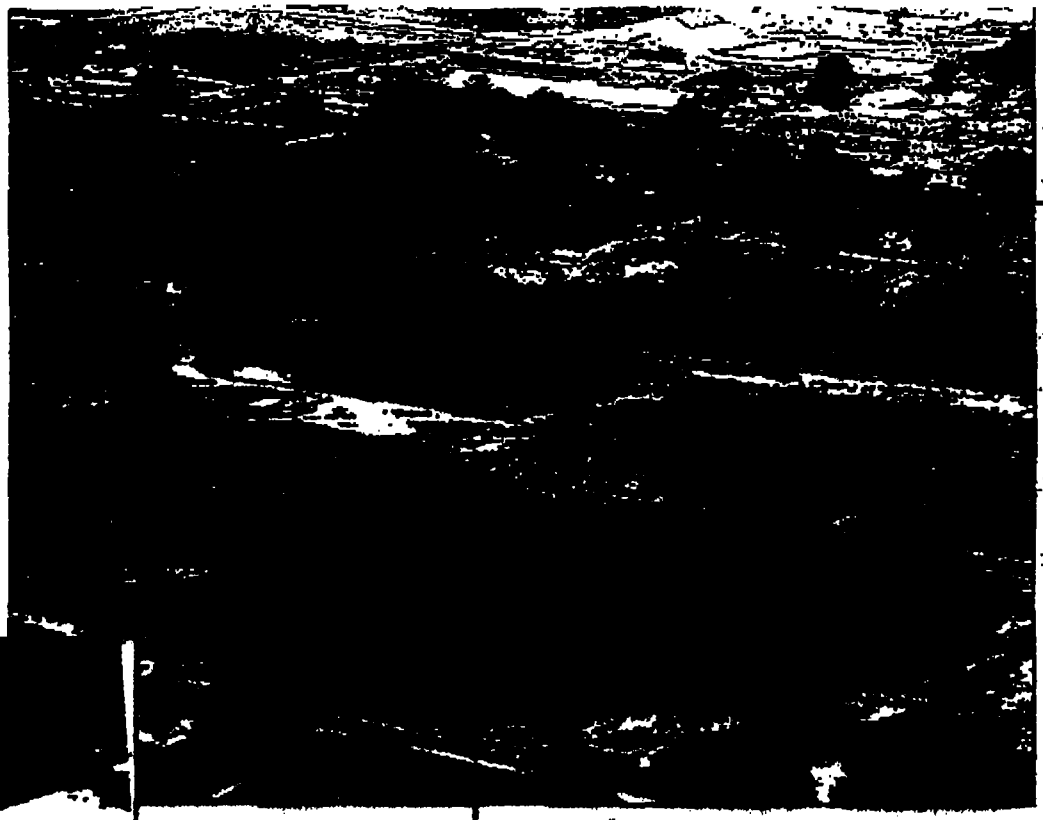
- ENTACT accomplished the regulatory negotiations, treatability study alterations, equipment and additive design, and performed an on-site pilot study that achieved the performance criteria were performed within 7 months; other firms had worked on this project for five years without successfully treating any material
- Higher quality and more cost effective methods were implemented through significantly altering the treatment method and additive composition; designed a treatment additive and site-specific treatment process equipment to meet a groundwater protection standard of 0.015 mg/l, a compressive strength >50 psi, a hydraulic conductivity of $<1 \times 10^{-6}$ cm/s, and a TCLP lead concentration < 5.0 mg/l

MEDIUM
- ☑ SOILS
- ☐ GROUNDWATER
- ☑ SURFACE WATER

CONTAMINANT
- ☑ METALS
- ☐ ORGANICS
- ☐ ASBESTOS

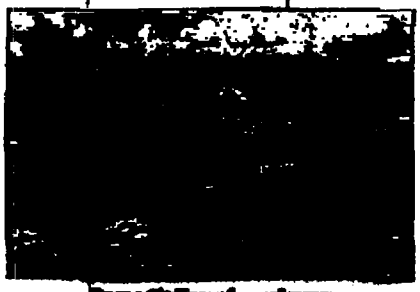
ACTIVITY
- ☐ MEDIA / MEDIA
- ☐ CAP CONSTRUCTION
- ☐ RESIDENTIAL CLEANUP
- ☑ TREATMENT

PLANT CITY, FLORIDA REGION 4



Permeability testing in on-site laboratory

Aerial view of ENTACT treatment unit



Demobilization of equipment

ENG/TECH ACHIEVEMENTS (CONTINUED)

- Treatment equipment designed specifically for this site crushed concrete debris, plastic, ebonite battery casings to < 0.5 inches, measured additive ratios, blended contaminated peat, and provided a homogeneous mixture of material

FIELD ACHIEVEMENTS

- Excavation and stabilization/solidification of approximately 200,000 tons of metal-contaminated soil, debris, and battery casings at process flow rates up to 1,000 tons per day
- Removed 20,000 cubic yards of sediment from 3 acre pond
- All stabilized material achieved performance criteria with one pass through the treatment system. In-situ permeability test performed on the treated material monolith exceeded the performance criteria of 1×10^{-6} cm/s - this was the first known in-situ permeability test performed on treated material in the United States.
- Field compaction efforts in 6 inch lifts maximized the performance criteria while reducing the overall in-place volume
- Constructed a 6 acre monolith with the stabilized material and designed a cover system
- Constructed field laboratory to monitor moisture content, material density, prepare permeability cylinders, and correlate XRF field results
- Performed air monitoring throughout the project

MEDIUM
- ☑ SOILS
- ☐ GROUNDWATER
- ☐ SURFACE WATER

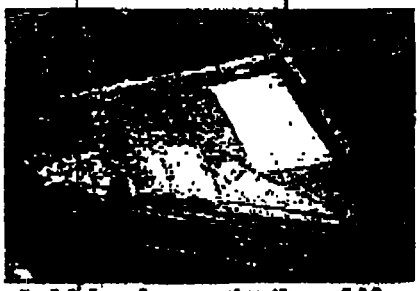
CONTAMINANT
- ☑ METALS
- ☐ ORGANICS
- ☐ ASBESTOS

ACTIVITY
- ☑ RECON / REMO
- ☑ CAP CONSTRUCTION
- ☐ RESIDENTIAL CLEANUP
- ☑ TREATMENT

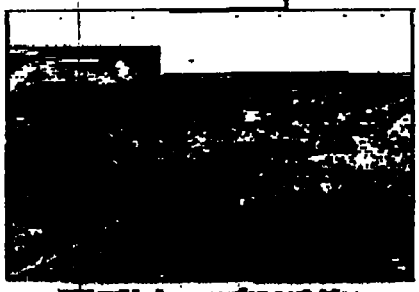
JONES TIRE & BATTERY SITE

BIRMINGHAM, ALABAMA REGION 4

Working during backfill demolition activities



Installation of cap construction activities



RIP rapping excavation activities

REGULATORY ACHIEVEMENTS

- Negotiated a modified removal solution in response to a US EPA CERCLA 106 Unilateral Administrative Order at a former battery reclamation facility
- Obtained approval from the EPA of the modified removal solution enabling a more cost effective solution to be implemented
- Preparation and approval of Removal Action Plan, Sampling and Analysis Plan, Health and Safety Plan, and Quality Assurance/Quality Control Plan through the US EPA Region 4

TECHNICAL ACHIEVEMENTS

- Designed a 4.5 acre RCRA grade cap and compacted clay liner system to contain 75,000 cubic yards of material upon completion of the project

FIELD ACHIEVEMENTS

- Installed perimeter and mobile task-specific dust suppression systems and air monitoring units
- Decontaminated, demolished and recycled a 65,000 square foot building and associated foundations
- Excavated 78,000 cubic yards of soil and buried debris
- Segregation, decontamination and off-site recycling of 1,700 tires
- Segregation, sampling, profiling, transportation, and disposal of abandoned waste drums
- Removed 2 underground fuel storage tanks
- Conducted verification sampling at 20 foot grid intervals to ensure contaminant removal
- Treatment of 58,000 cubic yards of contaminated soils and battery casings to nonhazardous levels
- Constructed a 4.5 acre RCRA grade cap and containment system
- Implemented the Post Closure Care Plan

MEDIUM
- ☑ SOILS
- ☐ GROUNDWATER
- ☑ SURFACE WATER

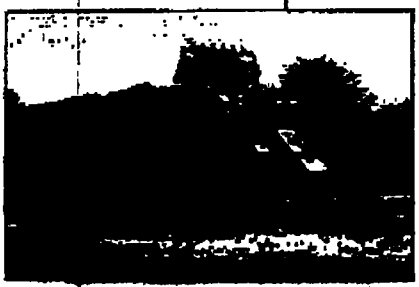
CONTAMINANT
- ☑ METALS
- ☐ ORGANICS
- ☐ ASBESTOS

ACTIVITY
- ☐ RI/FS
- ☐ CAP CONSTRUCTION
- ☐ RESIDENTIAL CLEANUP
- ☑ TREATMENT

FORMER FOUNDRY

TYLER, TEXAS REGION 6

Excavation activities



Soil screening

Wet soil excavation

REGULATORY/TECHNICAL ACHIEVEMENTS

- Produced all plans related to work including Workplan, Stormwater, Health & Safety, Weekly Voluntary Cleanup Program Reports
- Interacted frequently with Texas Natural Resource Conservation Commission (TNRCC) representative

FIELD ACHIEVEMENTS

- Managed, treated and discharged more than 400,000 gallons of stormwater to POTW
- Excavated, treated and off-site disposed 71,000 tons of metals impacted material, much of which was pure foundry sand
- Cleared and grubbed 15 acres of vegetation
- Backfilled, revegetated and restored site in preparation for sale

CUSTOMER CARE ACHIEVEMENTS

- Worked closely with (3) adjacent landowners who were in a liability dispute with customer
- Managed and dried for treatment, extremely wet material after two weeks of storms, without change order
- Reduced project costs and sped up completion by introducing volume verification alternative to surveying which was being performed multiple times at each excavation area
- Avoided permit costs and delays by managing stormwater under construction authority

EFFICACY STATEMENT OF ACHIEVEMENTS

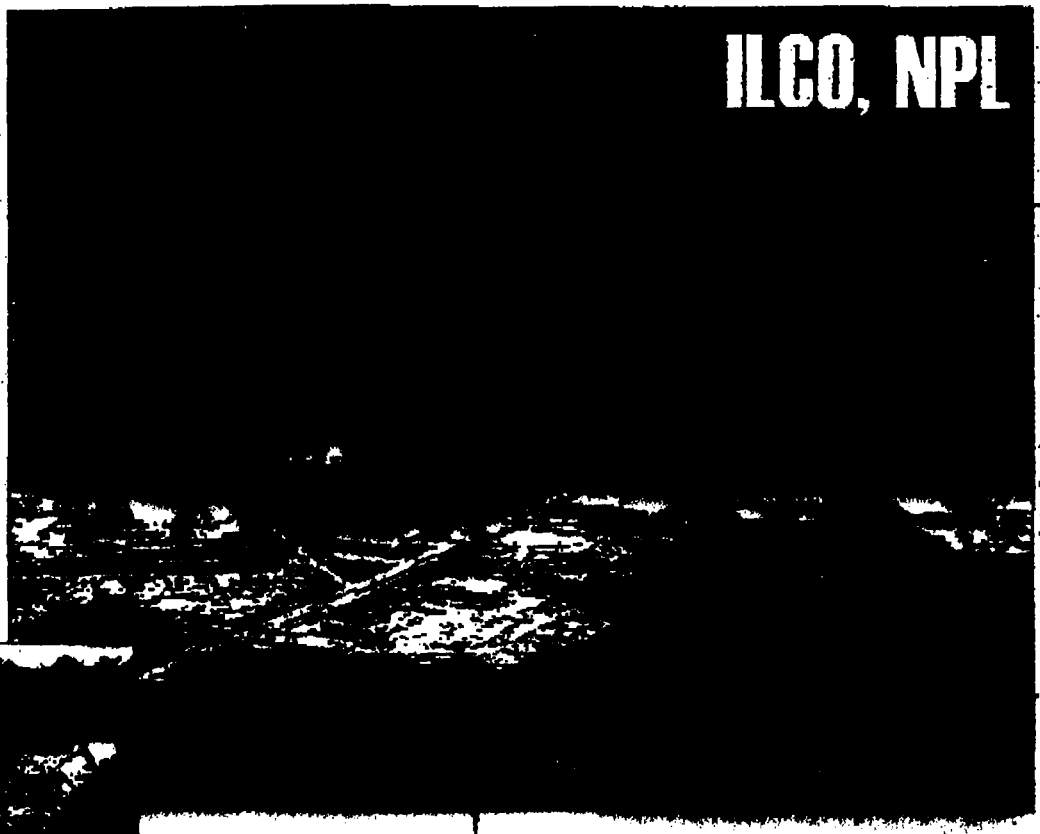
MEDIUM
- ☑ SOILS
- ☐ GROUNDWATER
- ☐ SURFACE WATER

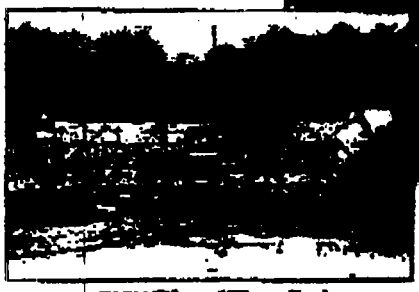
CONTAMINANT
- ☑ METALS
- ☐ ORGANICS
- ☐ ASBESTOS

ACTIVITY
- ☑ REMOVAL / DEMO
- ☐ CAP CONSTRUCTION
- ☐ RESIDENTIAL CLEANUP
- ☑ TREATMENT

ILCO, NPL

LEEDS, ALABAMA REGION 4





Demolition of Water Tank

Stockpiling of Contaminated Material

Off Site Disposal of Contaminated Material

REGULATORY/TECHNICAL ACHIEVEMENTS

- Prepared a Remedial Action Workplan and Health and Safety Plan for the site subject to approval by US EPA Region 4 and ADEM
- Designed an innovative treatment system for the treatment of battery casing debris to non-hazardous levels
- Constructed a limited-access web page to provide the PRP Group a forum to review the progress of the remedial action

FIELD ACHIEVEMENTS

- Completed soil remediation activities concurrently at five separate commercial/industrial and residential properties associated with the Site in and around the City of Leeds
- Excavated and disposed of 125,000 tons of lead and arsenic-impacted soil at an off-site Subtitle D landfill
- Stabilized 55,200 cubic yards of hazardous soils and battery casing debris to non-hazardous levels
- Decontaminated the interior of a 12,000 square foot building and approximately 40,000 square feet of concrete foundations
- Managed and/or discharged approximately 200,000 gallons of stormwater and decontamination water to the local POTW
- Coordinated the recycling/disposal of 260 tons of lead-bearing waste materials
- Completed the removal of an underground storage tank in accordance with ADEM requirements
- Conducted perimeter air monitoring at each property
- Demolished a 60,000 gallon storage tank and 5,000 square feet of concrete pad and footings
- Field screened soils using an XRF unit to guide the limits of the excavation on a real-time basis and maximize field efforts
- Conducted confirmation sampling of all properties prior to backfilling and site restoration to ensure the appropriate cleanup standards were met

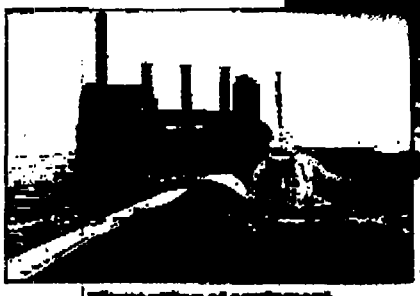
MEDIUM
- ☑ SOILS
- ☐ GROUNDWATER
- ☐ SURFACE WATER

CONTAMINANT
- ☑ METALS
- ☐ ORGANICS
- ☐ ASBESTOS

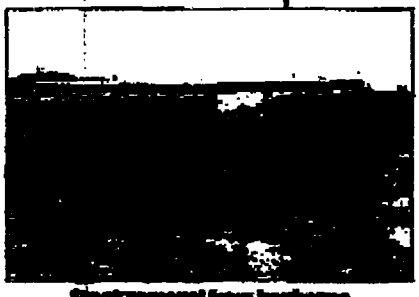
ACTIVITY
- ☑ DECON / DEMO
- ☑ CAP CONSTRUCTION
- ☐ RESIDENTIAL CLEANUP
- ☑ TREATMENT

SECONDARY LEAD SMELTER & BATTERY BREAKING FACILITY

CLEVELAND, OHIO REGION 5



Dismantling of equipment



Slag removal from furnaces

Stabilization activities

REGULATORY ACHIEVEMENTS

- Negotiated the scope of work for a Phase I Time Critical Removal Action including initial excavation requirements and air monitoring reporting
- Preparation and approval of Workplan, Health and Safety Plan, and Quality Assurance/Quality Control Plan through the US EPA Region 5
- Negotiated alternate final disposal for K069 contaminated brick and debris which resulted in substantial customer savings
- Obtained approval for placement of stabilized soils beneath asphalt cover system, reducing off-site disposal costs

ENGINEERING/TECHNICAL ACHIEVEMENTS

- Inventory of over 16 tons of chemical products on-site
- Characterization of 15 waste streams to determine disposal options
- Completed a treatability study for waste materials on site containing hazardous levels of lead, cadmium, and/or arsenic
- Sampling of 150 drums of solid and liquid waste
- Lab pack disposal of more than 200 orphaned laboratory chemicals including radioactive material
- Preparation and implementation of Phase II Engineering Evaluation/Cost Analysis
- Preparation and implementation off Remedial Design/Remedial Action for non-time critical final remedial action allows for property transfer and redevelopment

CLEVELAND, OHIO REGION 5

MEDIUM
- ☑ SOILS
- ☐ GROUNDWATER
- ☐ SURFACE WATER

CONTAMINANT
- ☑ METALS
- ☐ ORGANICS
- ☐ ASBESTOS

ACTIVITY
- ☑ DEMOLITION / DEBRIS
- ☑ CAP CONSTRUCTION
- ☐ RESIDENTIAL CLEANUP
- ☑ TREATMENT

Removal of residual dust

Decontamination of [illegible]

Segregation of [illegible]

FIELD ACHIEVEMENTS

- Demolished all industrial facility buildings on the 5 acre lot and a 9 chamber multistory brick baghouse building with a 120 foot stack, dismantling all furnaces, ball mills, kettles and other smelting apparatus
- Removed and disposed 21 tons of asbestos containing material (ACM)
- Excavated 2,000 cubic yards of lead, cadmium, and arsenic contaminated soil
- Dismantled and disposed fuel/oil tank farm on site
- Decontaminated on-site roundhouse structure containing significant amounts of petroleum hydrocarbons resulting from operations
- Decontaminated and recycled hundreds of tons of scrap metal
- Segregated, reduced particle size and subsequently treated 7,000 cubic yards of lead, cadmium, and arsenic contaminated material (brick, glass, concrete, solids and soil) to nonhazardous levels resulting in cost savings to customer
- Disposed 1,500 gallons of waste liquids (oil, solvents, degreasers, fuels, and water)
- Abrasive blasting of 15,000 square feet of K069 contaminated cinder block
- Decontaminated 100,000 square feet of concrete following removal activities
- Decommissioned 20 sumps - removed contaminant and line flushed on-site sewer lines
- On-site construction of tank containment system to confine stabilized soil awaiting verification results
- Final remedial action allowing for property transfer and redevelopment as part of City of Cleveland's Brownfield Initiative
- Removal and stabilization of ~2000 cubic yards of off-site lead-impacted soils
- Asphalt capping of 85,000 square feet for industrial re-use
- Reconditioning and repair of existing concrete surface outside asphalt cover

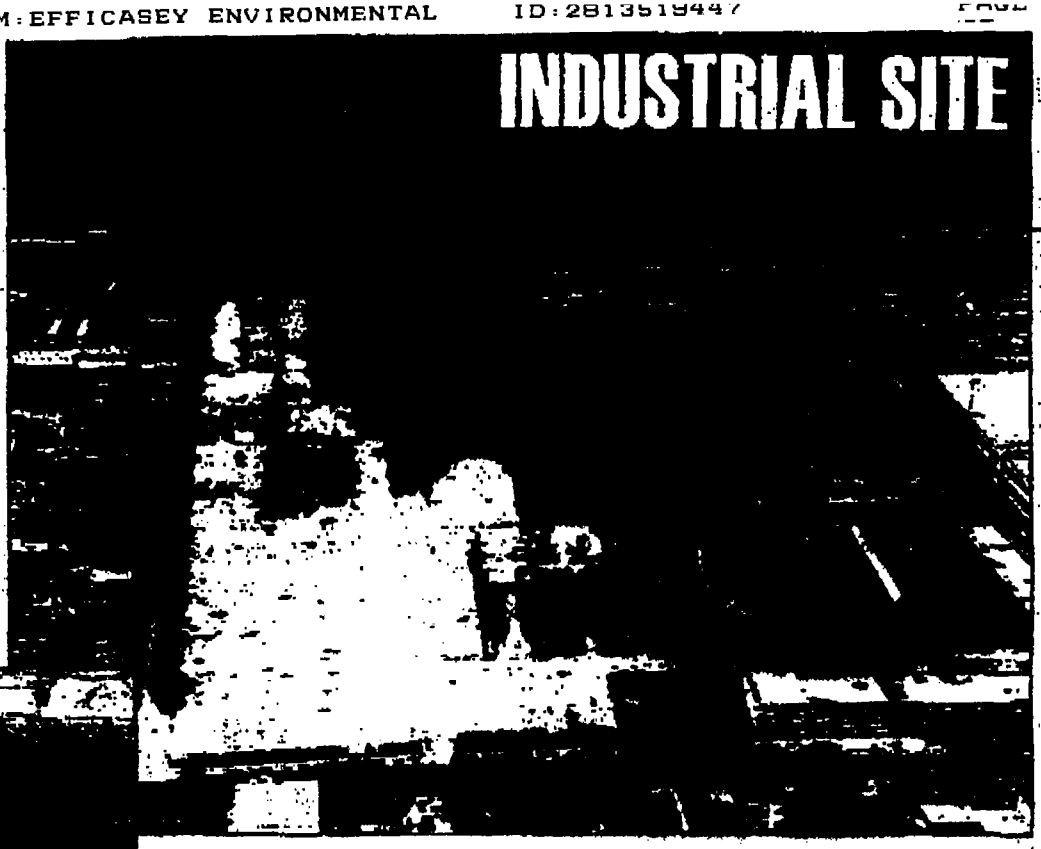
MEDIUM
- ☑ SOIL
- ☑ GROUNDWATER
- ☐ SURFACE WATER

CONTAMINANT
- ☐ METALS
- ☑ ORGANICS
- ☐ ASBESTOS

ACTIVITY
- ☐ DECON / DEMO
- ☐ CAP CONSTRUCTION
- ☐ RESIDENTIAL CLEANUP
- ☑ TREATMENT

INDUSTRIAL SITE

CHICAGO, ILLINOIS | REGION 5



On-site tank building

Sampling activities

Soil/sheeting installation

REGULATORY ACHIEVEMENTS

- Effectively characterized site and implemented engineered barriers to achieve a No Further Remediation (NFR) Letter from the Illinois Environmental Protection Agency (IEPA) under contracted timeframe and within lump sum contract price
- Convinced IEPA that the shallow groundwater on-site qualified for Class II status allowing for less restrictive remedial objectives
- Conducted soil and groundwater transport modeling to delineate the extent of groundwater impacts without off-site borings or monitoring wells
- Used engineered barriers and institutional controls to exclude exposure pathways, eliminating the need for soil or groundwater remediation at the site.

FIELD ACHIEVEMENTS

- Removed two 20,000-gallon inactive diesel Underground Storage Tank (UST) tanks and underlying free product and impacted soils for off-site disposal
- Repaired existing concrete and asphalt cap in order to eliminate the need for resurfacing the entire 8.3-acre parcel

MEDIUM
- ☑ SOILS
- ☐ GROUNDWATER
- ☑ SURFACE WATER

CONTAMINANT
- ☑ METALS
- ☐ ORGANICS
- ☐ ASBESTOS

ACTIVITY
- ☑ DECON / DEMO
- ☑ CAP CONSTRUCTION
- ☑ RESIDENTIAL CLEANUP
- ☑ TREATMENT

FORMER SECONDARY LEAD SMELTER FACILITY

REGION 5

NESQUEHONING, PENNSYLVANIA

REGULATORY ACHIEVEMENTS

- Prepared and approved various site plans including a Remedial Action Work Plan, Field Sampling and Analysis Plan, Interim Remedial Action Report, Health & Safety Plan, as well as extensive submittal packages

ENGINEERING/TECHNICAL ACHIEVEMENTS

- Provided management and oversight for the operation of the stormwater and landfill leachate treatment systems including collecting weekly leachate effluent samples to confirm discharge limits compliance
- Confirmed sampling of grid excavations for both residential and industrial properties to confirm obtainedment of performance criteria
- Performed screening, placement, treatment, final grading, seeding and maintenance of Total Petroleum Hydrocarbon (TPH) impacted soil in accordance with the a USEPA provided bioremediation plan

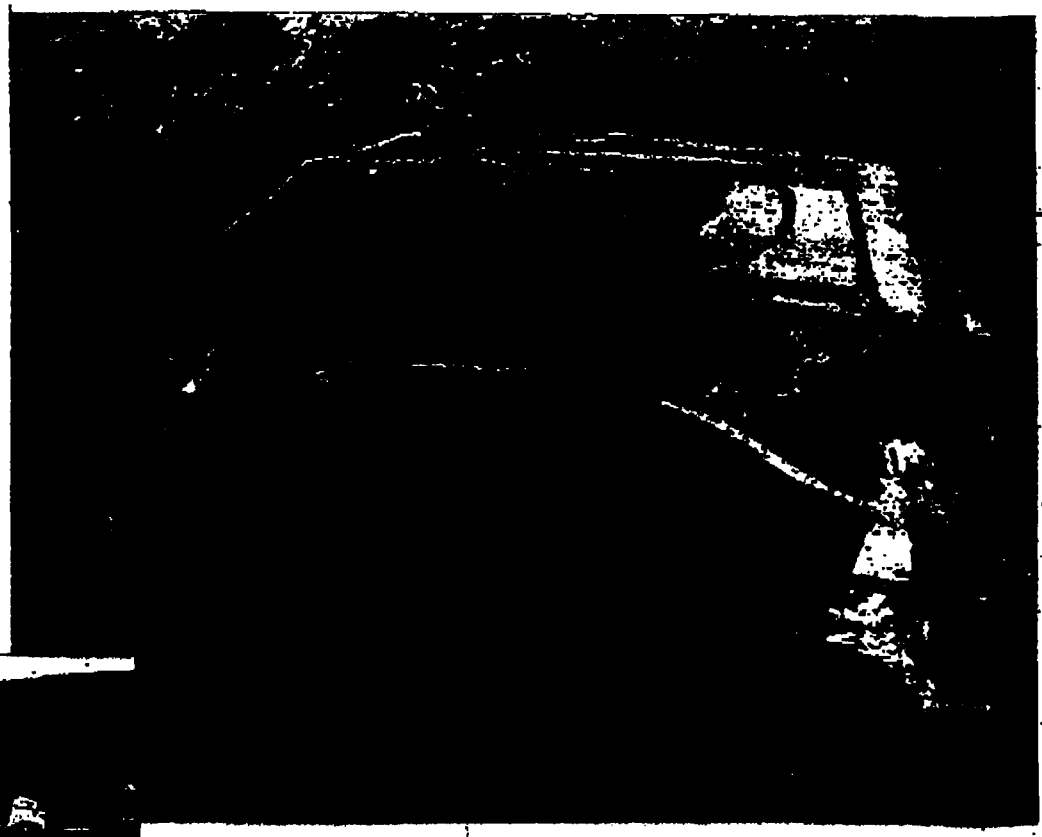
MEDIUM
- ☑ SOILS
- ☐ GROUNDWATER
- ☑ SURFACE WATER

CONTAMINANT
- ☑ METALS
- ☐ ORGANICS
- ☐ ASBESTOS

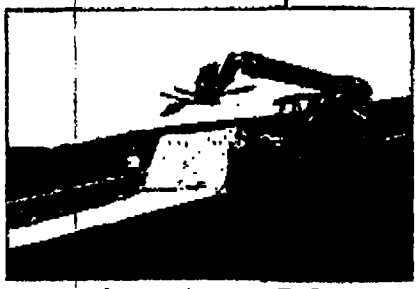
ACTIVITY
- ☑ DECON / DEMO
- ☑ CAP CONSTRUCTION
- ☑ RESIDENTIAL CLEANUP
- ☑ TREATMENT

REGION 3

NESQUEHONING, PENNSYLVANIA



Drilling out lime wash slope



Soil stabilization on north slope

Liner installation

FIELD ACHIEVEMENTS

- Decontaminated and removed several site structures including concrete walls, slabs, old stormwater treatment system and kettle basins
- Constructed a landfill cell including cell excavation, subgrade preparation, geosynthetic liner installation, and leachate collection system installation;
- Excavated and segregated lead impacted soils from residential and industrial properties and placement within the landfill cell or use as backfill material
- On-site stabilization of excavated soils and other material containing total lead concentrations greater than 10,000 mg/kg, analytical testing of stabilized materials to confirm that performance criteria were met, and placement of stabilized material within the landfill
- Backfill, final grading, restoration and seeding of residential and industrial excavation areas
- Removed contaminated sediments and restoration of Nesquehoning Creek
- Final waste grading, permanent geosynthetic and soil cap construction, turf establishment, erosion matting installation and seeding of newly constructed cap

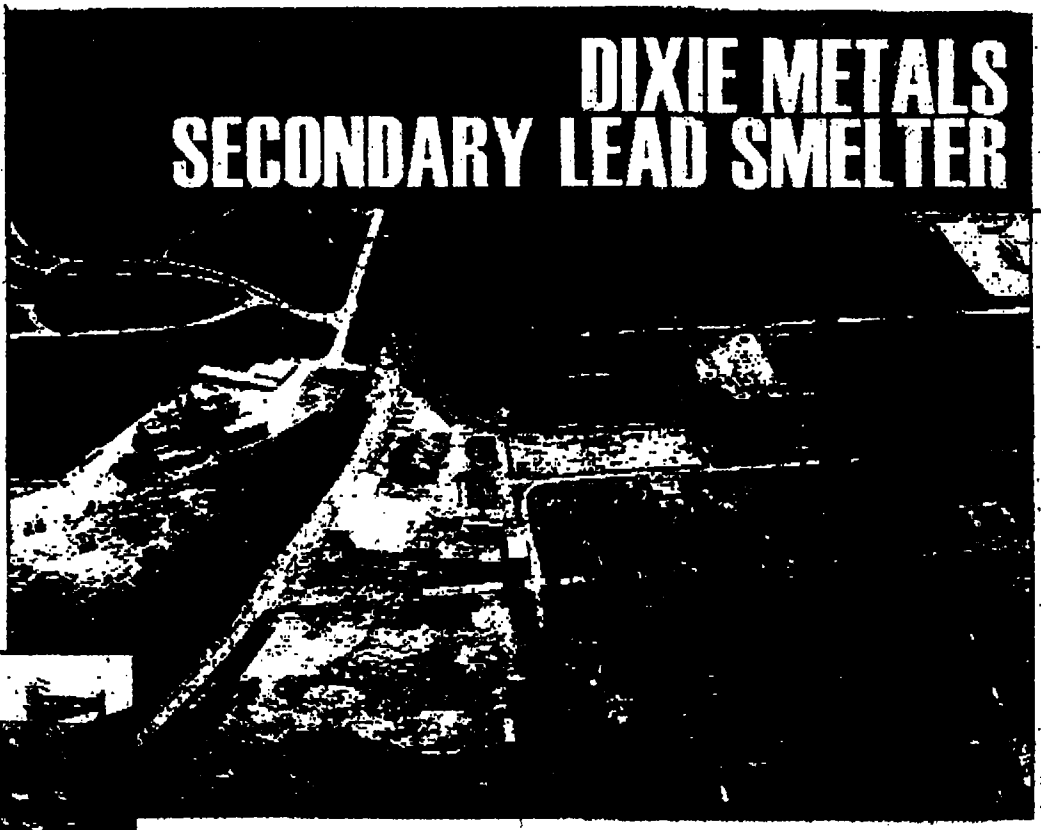
MEDIUM
- ☑ SOILS
- ☑ GROUNDWATER
- ☐ SURFACE WATER

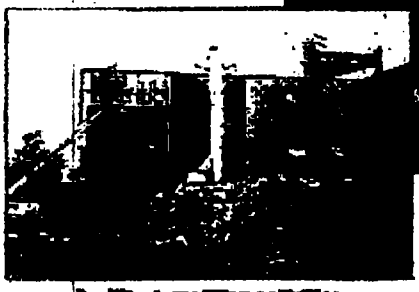
CONTAMINANT
- ☑ METALS
- ☐ ORGANICS
- ☐ ASBESTOS

ACTIVITY
- ☑ DECON / DEMO
- ☑ CAP CONSTRUCTION
- ☑ RESIDENTIAL CLEANUP
- ☑ TREATMENT

DIXIE METALS SECONDARY LEAD SMELTER

DALLAS, TEXAS | REGION 6





Facility demolition activities

Slurry wall preparation activities

Cap installation activities

REGULATORY ACHIEVEMENTS

- Negotiated State Administrative Order
- Gained approval for full facility closure and on-site construction of containment system for disposal of contaminated materials in flood plain and residential areas
- Coordinated all activities with Texas Natural Resources Conservation Commission (TNRCC)
- Prepared and received approval of Remedial Action Plan, Closure Plan for 18 hazardous waste units, RFI Workplan, Stormwater Permit Pollution Prevention Plans, Offsite Facility Investigation, and Post-closure Care Permit

ENGINEERING/TECHNICAL ACHIEVEMENTS

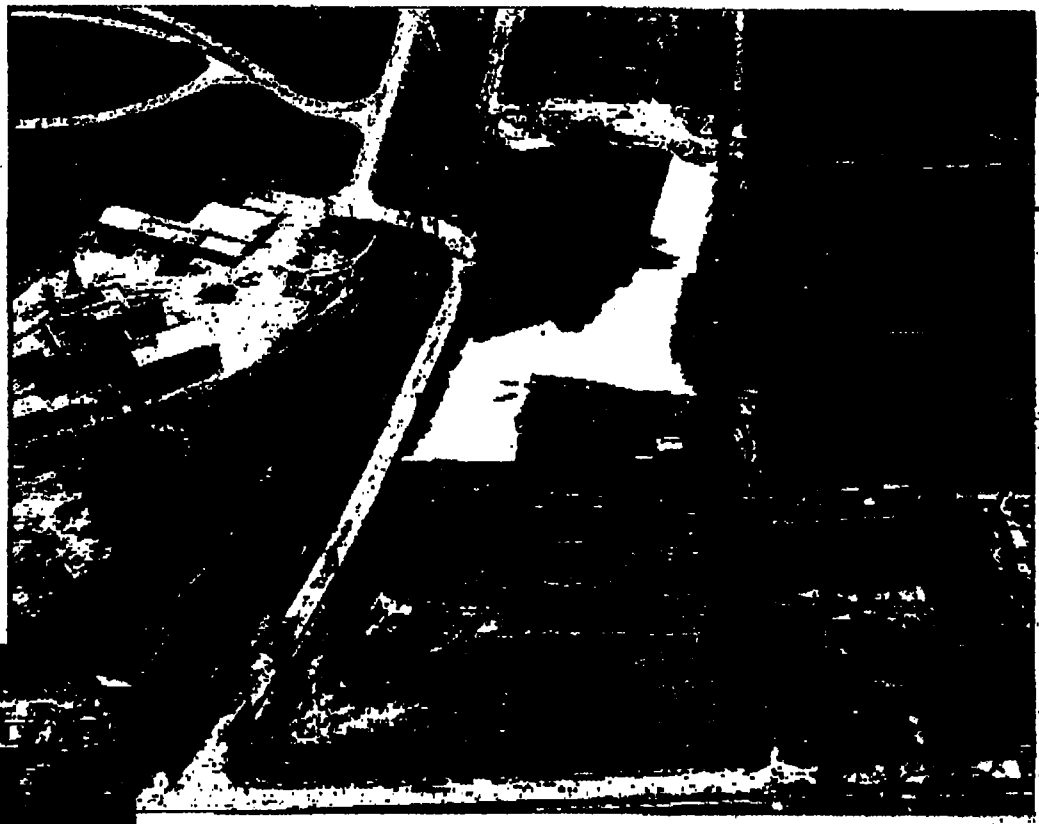
- Designed 5,800 linear foot, 30 foot deep, subsurface slurry wall
- Designed system to crush and treat 45,000 cubic yards of slag, lead contaminated soil, and battery casings
- Designed 13 acre RCRA grade cap
- Designed groundwater monitoring and remediation system

MEDIUM
- ☑ SOILS
- ☑ GROUNDWATER
- ☐ SURFACE WATER

CONTAMINANT
- ☑ METALS
- ☐ ORGANICS
- ☐ ASBESTOS

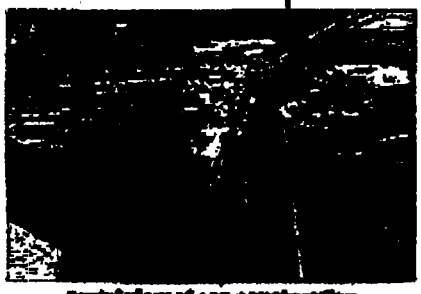
ACTIVITY
- ☑ RI/FS / RD/RA
- ☑ CAP CONSTRUCTION
- ☑ RESIDENTIAL CLEANUP
- ☑ TREATMENT

DALLAS, TEXAS | REGION 6



Slurry wall installation on perimeter of cap

Cap stabilization activities



Aerial view of cap construction

FIELD ACHIEVEMENTS

- Decontaminated and demolished a 75,000 square foot building including smelter buildings and equipment
- Decontaminated 18 hazardous waste units
- Removed K069 contaminated debris for Best Demonstrated Available Technology (BDAT) treatment and recovery at a secondary lead smelter
- Remediated and restored residential properties adjacent to the smelter facility
- Treated 45,000 cubic yards of contaminated soils and smelter slag to Class II nonhazardous levels
- Performed in-situ neutralization of low PH soils
- Constructed subsurface slurry wall 30 feet deep and 5,800 feet in length
- Constructed a 13 acre RCRA grade cap
- Closed 250,000 cubic yards of contaminated material inside containment system
- Performed on-site treatment of contaminated water and discharged to city facility
- Installed 51 monitoring wells

MEDIUM
- ☑ SOILS
- ☑ GROUNDWATER
- ☑ SURFACE WATER

CONTAMINANT
- ☑ METALS
- ☑ ORGANICS
- ☑ ASBESTOS

ACTIVITY
- ☑ SECTION / REMOVAL
- ☑ CAP CONSTRUCTION
- ☐ RESIDENTIAL CLEANUP
- ☐ TREATMENT

FORMER LEAD REFINERY AND SECONDARY LEAD SMELTER

REGION 5 EAST CHICAGO, INDIANA

Cap construction activities

Demolition activities

Soil sampling activities

REGULATORY ACHIEVEMENTS

- Proposed the use of a relatively new regulatory tool called a Corrective Action Management Unit (CAMU) that would allow on-site disposal of contaminated soils
- Negotiated the first CAMU in Region 5 that incorporated hazardous waste management units closed inside the CAMU
- Obtained approval from the EPA of the modified removal solution which enabled a more cost effective protective solution to be implemented
- Developed and approved an Interim Stabilization Measure which secured the majority of the contaminated areas
- Developed, modified RCRA Facility Investigation
- Prepared Interim Stabilization Measures Workplan, Sampling and Analysis Plan, Health and Safety Plan, and Quality Assurance/Quality Control Plan

ENGINEERING/TECHNICAL ACHIEVEMENTS

- Designed an Extent of Contamination (EOC) survey
- Designed 30 feet deep subsurface containment wall
- Designed 14 acre RCRA cap

FIELD ACHIEVEMENTS

- Decontaminated and demolished remaining industrial facility buildings
- Excavated and consolidated approximately 100,000 cubic yards of hazardous materials inside of the containment area
- Constructed a 30 feet deep subsurface slurry wall
- Completed EOC sampling activities
- Monitored perimeter and personnel air throughout project
- Removed 100,000 cubic yards of lead contaminated material from 45 acres of wetlands
- Restored wetland areas affected by remediation

MEDIUM
- ☑ SOILS
- ☑ GROUNDWATER
- ☐ SURFACE WATER

CONTAMINANT
- ☑ METALS
- ☑ ORGANICS
- ☐ ASBESTOS

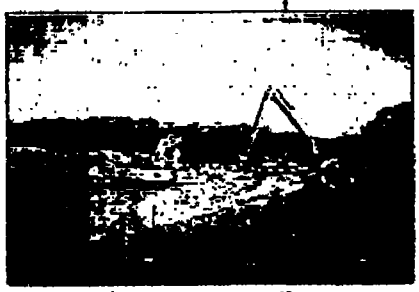
ACTIVITY
- ☐ RI/FS / RD/RA
- ☑ CAP CONSTRUCTION
- ☐ REMEDIAL CLEANUP
- ☐ TREATMENT

LAKELAND DISPOSAL LANDFILL SUPERFUND SITE

CLAYPOOL, INDIANA REGION 5

HDPE drainage system installation

Excavation activities



Slurry wall excavation

REGULATORY ACHIEVEMENTS

- Conducted site remediation in compliance with U.S.EPA Region V Unilateral Administrative Order
- Developed Project Work Plan, Quality Assurance/Quality Control Plan, Health & Safety Plan, Storm Water Management Plan
- Provided on going submittal packages, technical modifications and reports as required by the project technical specifications

ENGINEERING/TECHNICAL ACHIEVEMENTS

- Assisted in redesign of slurry wall to accomplish installation through wetland area
- Obtained U.S.EPA approval to modify subsurface drain specifications to allow successful installation of the High Density Polyethylene (HDPE) piping utilizing the specialized one-pass trenching equipment

FIELD ACHIEVEMENTS

- Installation of subsurface HDPE drainage system to depths up to 40 feet utilizing specialized one pass trenching equipment
- Construction of 2,830 lineal feet of slurry wall around perimeter of existing landfill to depths up to 40 feet
- Construction of groundwater treatment system consisting of collection piping, concrete manholes, pumps and treatment building and components
- Construction of twenty-two acre landfill cap consisting of soil foundation layer, geomembrane layer, drainage layer, protective soil layer and topsoil
- Installation of new groundwater monitoring wells and abandonment of existing groundwater monitoring wells
- Site restoration including grading for water management and seeding